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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/595,189	01/29/2007	Hans-Jürgen Euler	16455.5	4252

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EXAMINER	
PATEL, JAYESH A	
ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/595,189	EULER, HANS-JÜRGEN	
	Examiner	Art Unit	
	JAYESH PATEL	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 December 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 January 2007* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/08/2010 has been entered.

Claim Objections

Claim 21 is objected to because of the following informalities: at least the two identifiable reference structures at lines 17,21 and 25 should read "at least the said two identifiable reference structures". Also "the reference structures" at lines 19 and 23 should read "the said two identifiable reference structures". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 21-25,27-40 and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtomo et al. (US 6859269) hereafter Ohtomo in view of the

Turner et al (EP 0587328 A2) hereafter Turner and in further view of Kim (US 20020080064) hereafter Kim.

1. Regarding claim 21, Ohtomo discloses a method for determining an actual position of a geodetic instrument comprising a positioning system (GPS at Col 2 line 7) which is based on the reception of shadowable signals and a dead range within which the propagation of the signal is impaired in such a way that a direct determination of the actual position by means of the positioning system is at least limited **(Col 1 lines 59 through Col 2 lines 1-5 which discloses lacking an image portion in the acquired image meets the limitation of the shadowable signals)** comprising the following acts:

recording of a first piece of image information from a first known position determined by means of the positioning system **(Fig 6 which discloses acquiring an image with the surveying instrument from position X and Col 2 lines 36-46 which discloses the positional information associated with the images between the known points)**, the first piece of image information having at least two identifiable reference structures which can be detected at least from a partial region of the dead range and measurement of at least one first distance from the first known position **(Fig 5 which discloses the surveying instrument 44 taking an image of the building and the tree from left side which meets the limitation of two reference structures and the tree not seen in Fig 6 when an image is acquired from position Y which does not have tree meets**

the limitations of the dead range), the first distance being coordinated indirectly or directly with the reference structures;

recording of a second piece of image information from a second known position determined by means of the positioning system **(Fig 6 which discloses acquiring an image with the surveying instrument from position Y and Col 2 lines 36-46 which discloses the positional information associated with the images between the known points)**, the second piece of image information having identifiable reference structure **(building corners form location Y as seen in Fig 6)** and measurement of at least one second distance from the second known position **(Fig 6 and Col 6 lines 15 which discloses known points X and Y are set)**, the second distance being coordinated indirectly or directly with the reference structures;

recording of a piece of actual image information from an actual position, the actual image information having at least the two identifiable reference structures and measurement of at least one actual distance from the actual position, the actual distance being coordinated indirectly or directly with the reference structures; derivation of the actual position by referencing relative to the at least two reference structures **(Figs 6-7, Col 2 lines 23-46, Col 5 lines 1-12 and Col 6 lines 12-30 which discloses the image acquired from the two or more directions when the surveying instrument is installed at multiple locations (two or more) meeting the limitation of an actual image recorded (third) as claimed)**. Ohtomo discloses the image capturing and associating the

survey data such as positional information as seen above and also discloses the reference structures as seen in **Figs 5-6**, however does not recite in exact claim language the second piece of image information having at least two identifiable reference structures and the reception of the shadowable signals of the positioning system and the dead range where the signals are impaired.

Turner discloses an image processing system which discloses the cameras capturing the images having number of markers located in the field of view as seen in **Fig 1 and at Col 2 lines 7-14** meeting the limitation of the second piece of image information having identifiable reference structure as claimed. Turner discloses that the system provides an exact solution of the mapping (location and position) of the points rather than approximation at **Col 4 lines 22-27**. Turner is silent and does not recite in exact claim language the reception of the signals of the positioning system are shadowable and impaired and in the dead range (obstructed).

Kim discloses the system for determining the position of the positioning system with the GPS measuring the position whose signals are impaired and deteriorated because of the tall buildings **(meeting the limitations of obstructed and shadowed signals at paras 0018,0020, 0050 and 0055)** . Kim discloses that the method and system improves the correctness of the position calculation at **para 0055 (motivation)**. Kim, Turner and Ohtomo are combinable because they are from the same field of endeavor and are analogous art, therefore it would be obvious for one of ordinary skill in the art at the time the

invention was made to have recognized the teachings of Kim in the method of Turner and Ohtomo to obtain the claimed invention.

2. Regarding claim 22, Ohtomo, Turner and Kim discloses the method according to claim 21. Ohtomo discloses further comprising repeating individual acts or a plurality of the acts set forth in claim 21 where the image capturing acts are repeated as seen in claim 21 and **(Figs 6-7, Col 2 lines 23-46, Col 5 lines 1-12 and Col 6 lines 12-30 which discloses the synthesized image constructed from the two or more images when the surveying instrument is installed at multiple locations meeting the limitation of an actual image)**.

3. Regarding claim 23, Ohtomo, Turner and Kim discloses the method according to claim 21. Ohtomo discloses further wherein one distance is measured in each case in the measurement of the distances to each of the reference points **(Col 1 lines 41-42 where the distance measuring unit measures the distance)**. Turner also discloses measuring the distance of the cameras and the markers at **Col 3 lines 13-15 and in Fig 1**. Ohtomo and Turner therefore would together meet the claim limitation.

4. Regarding claim 24, Ohtomo, Turner and Kim discloses the method according to claim 21. Ohtomo discloses further wherein a measurement of the distance to each point of a detected image is effected in the recording of the image

information **(Col 1 lines 50-51,Col 2 lines 10-22 and Col 6 lines 39 which discloses associating the positional data with the acquired images meeting the claim limitation)**. Turner also discloses measuring the distance to each point of the image at **Col 3 lines 14-15**. Ohtomo and Turner therefore would meet the claim limitations.

5. Regarding claim 25, Ohtomo, Turner and Kim discloses the method according to claim 21. Ohtomo discloses further wherein the position of the two reference structures is determined in the derivation of the actual position **(Figs 6-7, Col 2 lines 23-46, Col 5 lines 1-12 and Col 6 lines 12-30 which discloses the synthesized image constructed from the two or more images when the surveying instrument is installed at multiple locations meeting the limitation of an actual image and the positional data meeting the limitation of the actual position)**.

6. Regarding claim 27, Ohtomo, Turner and Kim discloses the method according to claim 21. Ohtomo discloses further wherein, in the derivation of the actual position, a transformation is used which links the actual position via the at least two reference structures to the first known position and the second known position **(Col 6 lines 1-11 where the transformation is disclosed meeting the claim limitation)**.

7. Regarding claim 28, Ohtomo, Turner and Kim discloses the method according to claim 21. Ohtomo discloses further wherein the measurement of the distances is carried out by means of optical distance measurement **(Fig 2 which discloses the optical elements and Fig 3 which discloses element 27 which is a distance measuring unit)**.

8. Regarding claim 29, Ohtomo, Turner and Kim discloses the method according to claim 28. Ohtomo discloses further wherein the measurement of the distances is carried out by means of laser distance measurement **(Col 3 lines 41 which disclose infrared light which is laser light and is in nm range meeting the claim limitation)**.

9. Regarding claim 30, Ohtomo, Turner and Kim discloses the method according to claim 21. Ohtomo discloses further wherein the positioning system includes a satellite-supported system **(Col 6 lines 29-30 where GPS and satellite are disclosed)**.

10. Regarding claim 31, Ohtomo, Turner and Kim discloses the method according to claim 30. Ohtomo discloses further wherein the positioning system includes a Global Positioning System **(Col 6 lines 29-30 where GPS and satellite are disclosed)**.

11. Regarding claim 32, Ohtomo, Turner and Kim discloses the method according to claim 21. Ohtomo discloses further wherein the positioning system includes an Earth-supported system **(Figs 4-6 which discloses the surveying instruments staked on the earth meeting the limitation of earth or ground supported system)**.

12. Regarding claim 33, Ohtomo, Turner and Kim discloses the method according to claim 32. Ohtomo discloses further wherein the positioning system includes a Total Positioning System **(Col 2 lines 5-11 discloses the GPS, positional data and association of the positional data with the image meet the limitation of total positioning system)**.

13. Regarding claim 34, Ohtomo, Turner and Kim discloses the method according to claim 21. Ohtomo discloses further wherein the at least two reference structures are identified automatically **(a control arithmetic unit at Col 6 lines 2-26 and as seen in fig 5 identifies the tree and the building meeting the limitation of two reference structures)**.

14. Regarding claim 35, Ohtomo, Turner and Kim discloses the method according to claim 21.Ohtomo discloses further wherein at least the first piece of image information is stored **(Col 6 lines 1-2 which discloses the images stored in the storage)** and the at least two reference structures in the actual

image information are identified by image processing methods **(Col 5 lines 1-12 and Col 6 lines 7-9 which discloses the actual image obtained by the synthesizing which is image processing methods)**.

15. Regarding claim 36 see the explanation of claim 35 where synthesizing requires image registration or matching methods in order to get the final image meeting the claimed limitation.

16. Regarding claim 37, Ohtomo, Turner and Kim discloses the method according to claim 21. Ohtomo discloses further wherein the recording of the first and second pieces of image information and the measurement of the first and second distances are carried out in an automated manner **(Col 6 lines 2-11 and 49-63 discloses the image pickup and measurement carried out in automated manner)**.

17. Regarding claim 38, Ohtomo, Turner and Kim discloses the method according to claim 37. Ohtomo discloses further wherein the recording of the first and second pieces of image information and the measurement of the first and second distances are constantly repeated **(Fig 6 and Col 6 lines 13-20 and lines 43-63 which discloses the repeating of the image pickup and measurement)**.

18. Regarding claim 39 see the explanation of claim 38 where the control arithmetic unit derives the actual position based on the synthesized image by transformation which requires a (computer) which is automatic meeting the claim limitation.

19. Regarding claim 40 see the explanation of claim 39.

20. Claim 52 is a corresponding non-transitory medium claim of claim 21. See the explanation of claim 21.

Claims 41-51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtomo in view of Turner, Kim and in further view of Alhadef et al. (US 20030202089) hereafter Alhadef.

21. Regarding claim 41, Ohtomo, Turner and Kim discloses the device for determining an actual position of a geodetic instrument according to the method of claim 21. Ohtomo discloses wherein the device configured to perform the method of claim 21 in an automated manner **(See explanation of claim 21)**. Ohtomo also discloses the surveying device which has two image capturing apparatus **(Fig 7 which meets the limitation of image recording unit)** and the processor determining the position of the building based on the synthesized image **(fig 7 the control unit and Col 2 lines 7-11, Col 6 lines 13-30)** meeting

the limitations of data processing unit configured to derive the actual position. Ohtomo discloses infrared light at Col 3 lines 41, distance measuring at Col 1 lines 41-42 and telescope at Col 2 lines 14 which is technically a telemeter, however is silent does not recite in exact claim language wherein the device comprising telemeter.

Alhadef discloses a laser telemeter at **paras 0171 and 0205**, which is used to measuring distance between the housing and the reference points in the images. Alhadef discloses in **para 0039** that the system using laser telemetry have the advantage of measuring the dimensions of the elements constituting the objects, therefore it would be obvious for one of ordinary skill in the art at the time the invention was made to have used the teachings of Alhadef in the device of Ohtomo and Turner for the above reasons.

22. Regarding claim 42, Ohtomo, Turner and Kim and Alhadef discloses the device according to claim 41. Ohtomo discloses further wherein the image recording unit includes an image memory **(Storage unit 43 at Col 6 lines 2 stores the images)**.

23. Regarding claim 43, see the explanation of claim 41 where laser telemeter is explained.

24. Regarding claim 44, Ohtomo, Turner and Kim and Alhadef discloses the

device according to claim 41. Alhadef discloses further wherein the telemeter is integrated in the image recording unit **(Fig 2A where the laser telemeter 38 is integrated in in the optical unit with the CCD camera. Also see para 0074 and 0077 where 5 mega pixel camera and laser telemetry are disclosed)**.

25. Regarding claim 45, Ohtomo, Turner and Kim and Alhadef discloses the device according to claim 44. Alhadef discloses further wherein the telemeter is integrated in the image recording unit in the form of a range imaging sensor or of a scanning telemeter **(para 0171 where the panning speed of the camera refers to a scanning telemeter integrated in the camera meeting the claim limitation)**.

26. Regarding claim 46, Ohtomo, Turner and Kim and Alhadef discloses the device according to claim 44. Ohtomo discloses further wherein the data processing unit is formed in such a way that a limitation of the direct determination of the actual position by means of the positioning system is recognizable and an alarm and/or an automated derivation of the actual position is triggered **(Col 2 lines 1-20 discloses the actual position is determined by the GPS)**.

27. Regarding claim 47, Ohtomo, Turner and Kim and Alhadef discloses the device according to claim 44. Ohtomo discloses further comprising an

inclinometer (**Fig 7 where elements 37 and 38 suggests the inclinometer as the angle are being measured**).

28. Regarding claim 48, Ohtomo, Turner and Kim and Alhadef discloses the device according to claim 44. Ohtomo discloses further comprising a direction meter **(Col 6 lines 54-55 where the direction of the image picked up is directed by the driving unit suggests the direction meter)**.

29. Regarding claim 49 see the explanation of claim 48.

30. Regarding claim 50 see the explanation of claim 41.

31. Regarding claim 51 see the explanation of claim 41. Ohtomo discloses the GPS at **(Col 2 lines 8)**.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ohtomo in view of Turner, Kim and in further view of Applicant admitted prior art (AAPA at specification page 2 lines 11-12 "an example of this is the classical trilinear surveying method") .

32. Regarding claim 26, Ohtomo and Turner discloses the method according to claim 25. Ohtomo discloses further the derivation of the actual position **(Figs 6-7,**

Col 2 lines 23-46, Col 5 lines 1-12 and Col 6 lines 12-30 which discloses the synthesized image constructed from the two or more images when the surveying instrument is installed at multiple locations meeting the limitation of an actual image). Kim discloses the triangular survey **(which is technically trilinear survey at para 0018)** however does not recite in exact claim language where in the derivation is effected by means of a trilinear surveying method.

AAPA discloses a classical trilinear surveying method. Thus it would be obvious to use a classical trilinear surveying method for derivation of the actual position.

Other Cited Prior art

The other cited art pertinent to the applicant's disclosure but not relied on are (US 6430505), (US 6762721), (US 6526352), (US 5517419), (US 6233523) and (US 6462285).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JAYESH PATEL whose telephone number is (571)270-1227. The examiner can normally be reached on 5-4-9.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

3/11/11
/JAYESH PATEL/
Examiner, Art Unit 2624